OPERATION OF THE MuTr TEST STAND GAS SYSTEM IN BLDG. 905

procedure name

PHENIX Procedure No. PP-2.5.2.12-02

Revision: A **Date: 6-22-99**

Hand Processed Changes

HPC No.	Date	Page Nos.	Initials

Approvals

N.A.
PHENIX S E & I Date

X-7209 SAU6/99
Cognizant Scientist/Engineer Date
/Activity Manager

8/24/99
PHENIX QA/Safety Date

8-29-99
RHIC ES&H Date

REVISION CONTROL SHEET

LETTER	DESCRIPTION	DATE	WRITTEN BY	APPROVED BY	CURRENT OVERSIGHT
A	First Issue	6/22/1999	n/a	R. Towell, W. Lenz, A. Etkin	n/a
RETIRED	Tests Completed	3/9/2007	n/a	D. Lynch, R. Pisani, P Giannotti for PHENIX	D.Lynch

1.0 Purpose and Scope

This procedure provides instructions for the safe operation of the gas systems in the test stand area in building 905 that is used for Q/A testing of the MuTr cathode strip chambers. It describes the process to move a gas bottle, change or replace a gas bottle, and how to adjust the flow. It is intended for nonflammable gas mixtures only.

2.0 Responsibilities

2.1 Operator is responsible for conducting the procedures and logging of the gas operation in the logbook.

2.2 Operator is responsible for following all instructions in ESH 1.4.0 "Compressed Gas Cylinder Safety".

3.0 Prerequisites

3.1 Formal BNL compressed gas safety training.

3.2 Training must be documented on the worker's BNL training record.

4.0 Moving a gas bottle - general:

4.1 Adhere to all ESH 1.4.0 section VI.A instructions.

5.0 Removing empty bottle:

5.1 Close "Bottle Regulator Output" valve (V51-56) in line downstream of the bottle regulator. (valve handle horizontal is closed)

5.2 Close bottle valve on top of gas bottle. (turn valve clockwise to close)

5.3 Open "Bottle Regulator Purge" valve (V91-96). (valve handle vertical is open)

5.4 Verify that both the high and low pressure regulator gases go to zero.

5.5 Remove pigtail from bottle.

5.6 Install bottle safety cap.

5.7 Tear off "In Service" portion of tag on bottle so it now shows only EMPTY.

5.8 Move bottle to storage cage observing requirements in 4.0.

6.0 Installing full bottle:

6.1 Install bottle in rack and secure with strap.

6.2 Remove safety cap.

6.3 Clean bottle outlet port:

- 6.3.1 SAFETY REQUIREMENTS:
  - 6.3.1.1 Operator MUST wear goggles, or safety glasses with side shields, to prevent getting dirt in their eyes.
  - 6.3.1.2 Opening the bottle valve to blow out the valve body with bottle pressure is NEVER permitted.
  - 6.3.1.3 Wearing a glove is a good way to reduce the risk of cutting a finger on sharp threads.
- 6.3.2 Wipe threads with a clean rag.
- 6.3.3 Blow out bottle valve with an air duster, while standing to the rear of the bottle valve.

6.4 Make sure that the "Bottle Regulator Purge" valve, V91-96, is still open.

6.5 Check cleanliness of the Pigtail.

6.6 Hook up the bottle to regulator pigtail and tighten with an open-end wrench of the correct size.
Note: Non–flammable gas fittings are right hand threads

6.7 Open the bottle valve all the way and then close one half turn (to prevent the valve from sticking in the open position).

6.8 Close the "Bottle Regulator Purge" valve, V91-96, after 10 seconds of purging out the air that got into the open pigtail during the bottle change.

6.9 Perform leak checking (Use commercial leak checking fluid around bottle valve, neck, and head area.) Clean fluid residue after leak check.

6.10 Verify the "Bottle Regulator Purge" valve, V91-96, is still closed and the bottle regulator low-pressure gage reads about 10 psi.

6.11 Open "Bottle Regulator Output" valve, V51-56.

6.12 Document the bottle change on the log sheet.

7.0 Adjusting flow for chamber testing

7.1 Close valves V45 and V46 on the output side of the " Fixed Pressure Regulator" (R11-R12).

7.2 Insure both "Fixed Pressure Regulator" (R11 and R12) are set to 5 psig.

7.3 Open valves V45 and V46.

7.4 Ensure valves V61, V63, and V1 to V10 are still closed.

7.5 Determine correct flow for Argon and CO2 from calibration table. The correct ratio is 70% Argon and 30% CO2. The correct total flow is equal to the number of chambers under test and the number of chambers in the storage rack. For storage maintain a flow of 1 liter/min and for testing maintain a flow of 10 liter/min.

7.6 Ensure proper circuit block values (V21 to V30) are open.

7.7 Open fully needle valves (V71 to V80).

7.8 Adjust V43 and V44 to obtain proper mixture of Argon and CO2.

7.9 Adjust needle valves (V71 to V80) to get proper flow to each circuit.

7.10 Monitor the flow rates and bottle pressure daily and record in the logbook.

8.0 Attachments

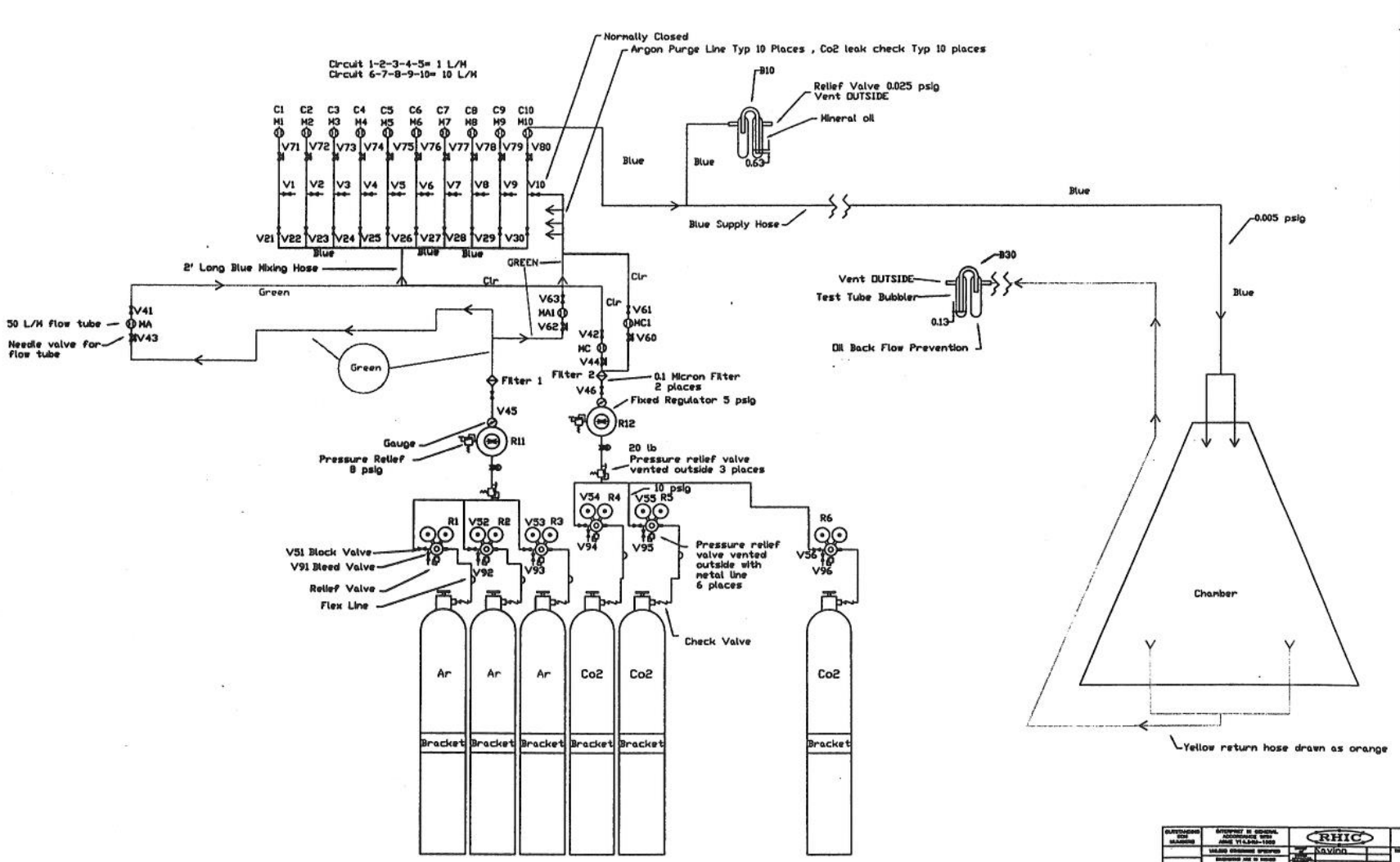
8.1 List of gas system operators.

8.2 Diagram of the gas system.

Attachment 8.1: List of Gas System Operators

1. DongJo Kim
2. Chris Kuberg
3. Dave Lee
4. Ray Savino
5. Bill Sandhoff
6. Matt Shaw
7. Makoto Sugioka
8. Rusty Towell
9. Christos Velissaris

NOTES:



REVISIONS

REV	ZONE	ECN NO.	DESCRIPTION	BY	DATE	CHK	APP

BROOKHAVEN NATIONAL LABORATORY
UPTON, N.Y. 11973

RHIC

TE' AMBER GAS SYSTEM

SIZE E | REV A

DWG No. NA | SCALE NA | SHEET 1 of 1